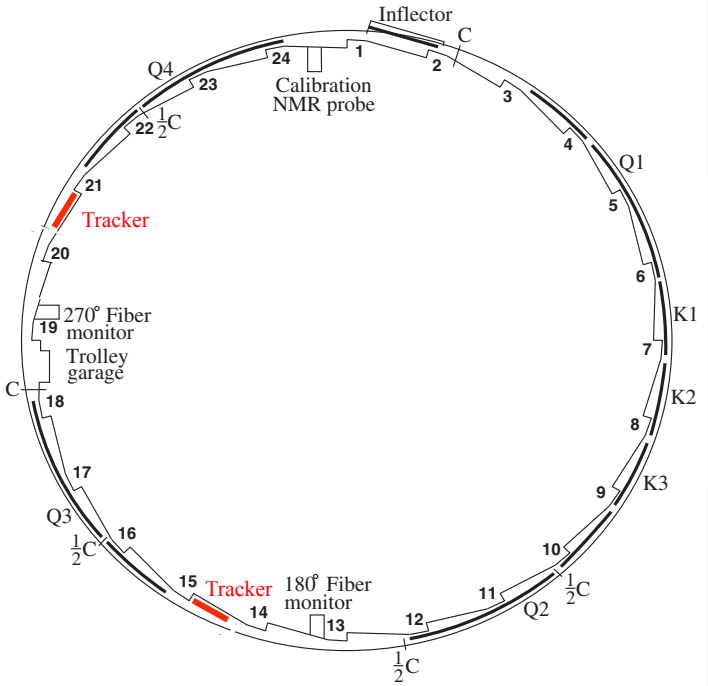
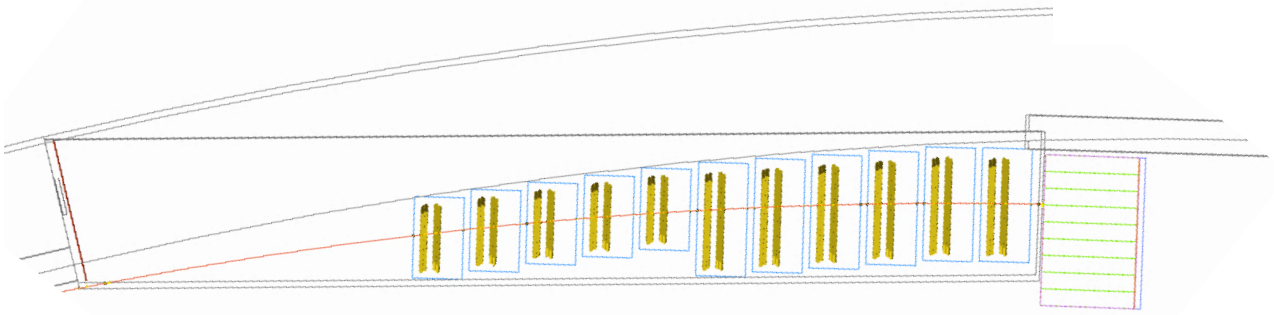
G-2 Tracker Test Beam (T1042)

Mandy Rominsky for the g-2 tracker team

What Tracking Does for g-2

- The goal of the g-2 experiment is to measure the anomalous magnetic moment of the muon to a precision of 0.14 ppm
- Requirements of the tracker
  - Measures muon beam dynamics
  - Reduces calorimeter systematics
- Restrictions on the tracker
  - Small space
  - Minimal vacuum load
  - Minimal impact on the magnetic field

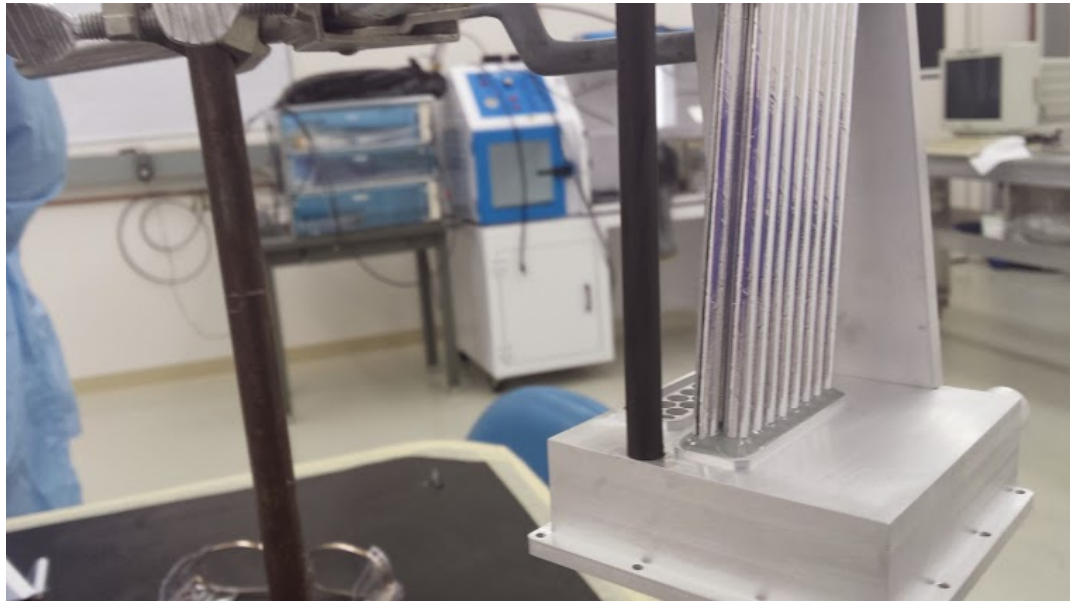




Tracker Test Beam Prototype

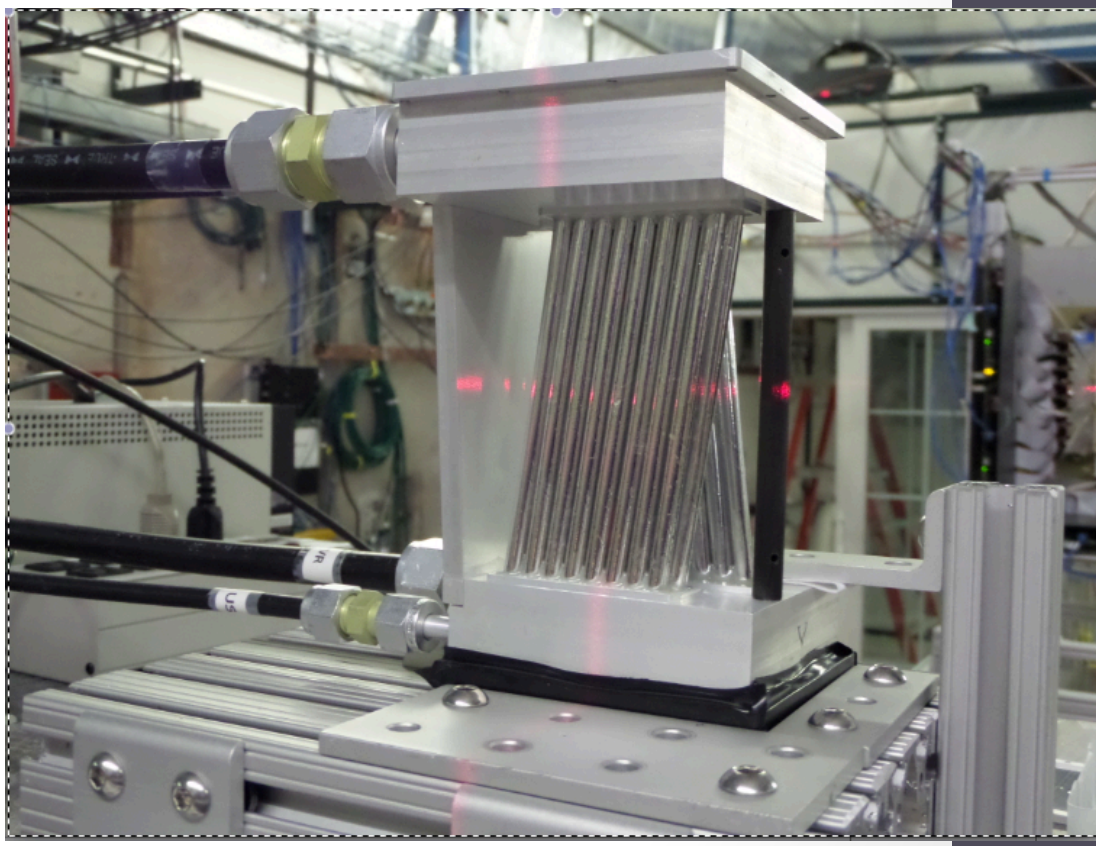
- 32 channel straw tracker prototype (Liverpool and Fermilab)
  - Straws are mylar metalized with aluminum on the outside and gold/aluminum on the inside
  - 5mm in diamter
  - Using 25 micron gold plated tungsten wire for the anode.
  - 2 doublet u/v layers
- Used prototype electronics

  (Boston and Fermilab)



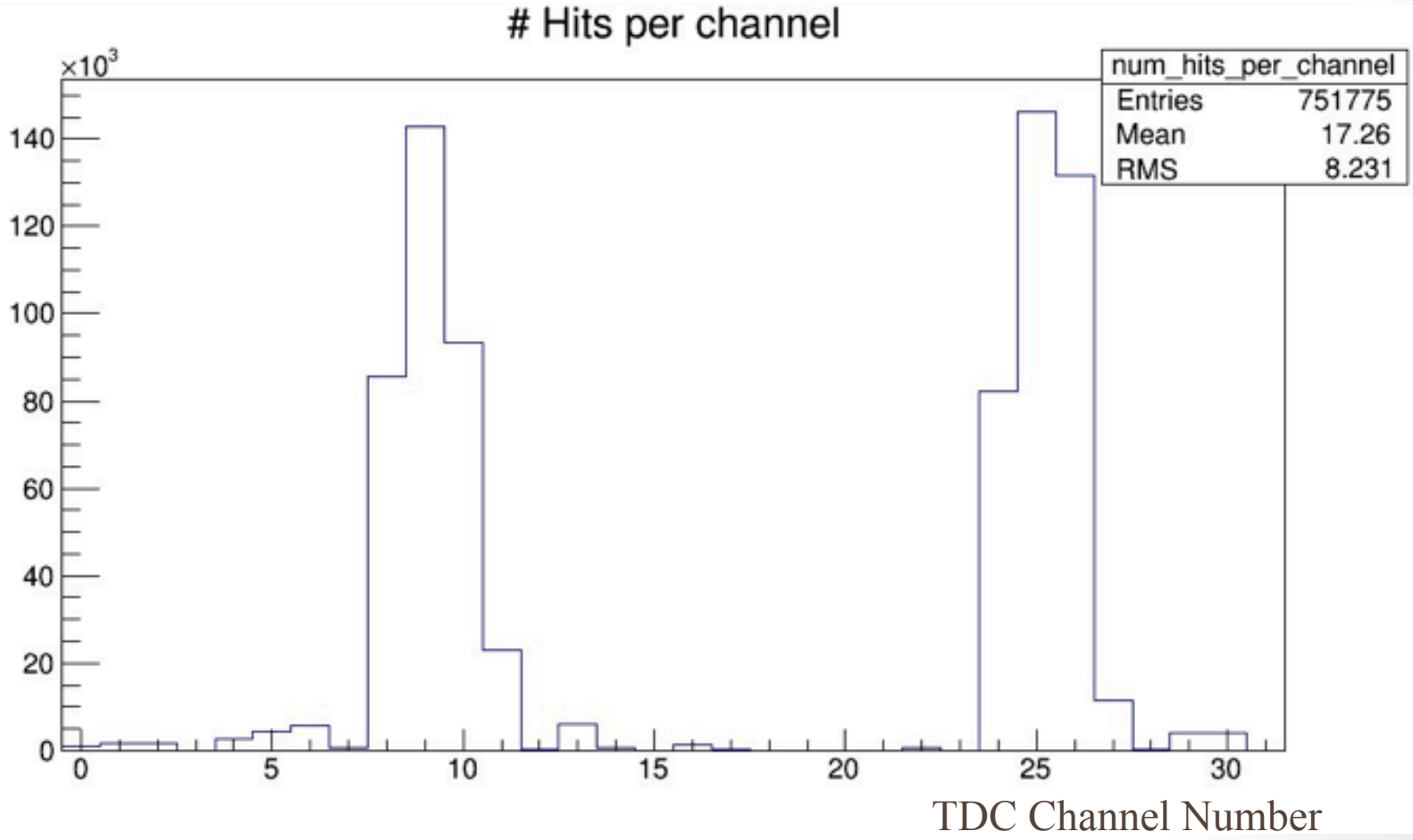
Test Beam Setup

- Used the 4 MWPCs provided
- Used the scintillator paddles for common stop signal
- MIDAS Daq
- Tests:
  - Move table to scan across straws
  - Did a high voltage scan
  - Goal is to determine resolution



Preliminary Results

- Hits in both the u and v layers of the prototype



Next Steps

- Finish analyzing data from this run
- Will return to FTBF in April for a test run that includes the vacuum chamber